



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/066,788	02/06/2002	Timothy Warner	02023	4514
23338	7590	07/12/2006	EXAMINER	
DENNISON, SCHULTZ & MACDONALD 1727 KING STREET SUITE 105 ALEXANDRIA, VA 22314			MORILLO, JANEL COMBS	
			ART UNIT	PAPER NUMBER
			1742	

DATE MAILED: 07/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/066,788

Applicant(s)

WARNER, TIMOTHY

Examiner

Janelle Combs-Morillo

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7,9-11 and 25-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7,9-11 and 25-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 11 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 11 (which is dependent on claim 1) mentions the equivalent time at 120°C is 100-250 hours, which is broader than independent claim 1.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-7, 9-10, and 25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ponchel et al (US 4,954,188).

Ponchel teaches a method of producing a high strength Al-Zn-Cu-Mg alloy by casting an ingot (column 3 line 24), homogenizing, hot working by rolling (column 3 line 12, 31), solution heat treating (column 3 lines 25-26, 31, 45), and aging in a single stage at 270-285°F for 6-30 hrs (abstract, for a t_{eq} = 20-227 hrs), which overlaps the presently claimed method aging time and temperature equivalence. Ponchel teaches said alloy comprises (in weight%): 5.9-8.2% Zn, 1.5-4.0% Mg, 1.5-3.0% Cu, and 0.5% max. Zr, Mn, Ti, balance aluminum (abstract, column 7 lines 12-14). Ponchel teaches high compressive strengths of typically 89 ksi can be achieved (see

Art Unit: 1742

Table III). High compressive strength is achieved by Ponchel for Ex. 6 with an aging treatment of 24hrs at 275°F (see Fig. 3), which is equivalent to $t_{eq}=107$. Ponchel teaches that the tensile properties increase but the compressive strength decreases for an aging treatment of 24 hrs at 300°F (see Fig. 3 ex. 11), which is equivalent to $t_{eq}=390$ (outside the present invention). Ponchel teaches that compressive strength is dependent on aging time and temperature.

Because Ponchel et al teaches a substantially overlapping alloy composition as well as aging cycle, it is held to be within the level of one of ordinary skill in the art to determine the optimum or workable ranges of said variable (that is, to obtain the maximum compression YS in the L direction), given the disclosure of Ponchel. (Additionally, as stated above, Ponchel teaches an example maximizing the compression YS).

Because Ponchel teaches substantially overlapping aging time and temperature ranges, it is held that Ponchel has created a prima facie case of obviousness of the presently claimed invention.

Concerning claims 2-6, 25, and 28, as stated above, Ponchel teaches an overlapping Al-Zn-Mg-Cu alloy composition. It would have been obvious to one of ordinary skill in the art to select any portion of range, including the claimed range, from the broader range disclosed in Ponchel because Ponchel finds that the prior art composition in the entire disclosed range has a suitable utility.

Concerning the particular aging steps of claims 9-10, Ponchel teaches aging, which overlaps the presently claimed aging temperature ranges and equivalent times.

Concerning claims 26, 27, 29, and 30, though Ponchel does not specify a metallurgical temper between two known temper designations, because Ponchel teaches ageing times and

Art Unit: 1742

temperature ranges that overlap the presently claimed aging time and temperature ranges, then the metallurgical temper designation would necessarily be the same.

4. Claims 1-7, 9-~~11~~, 25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunt, Jr (US 5,221,377).

Hunt teaches a method of aging applicable to 7000 series alloys (see Hunt at Table 3), said 7000 series alloy comprising 7.6-8.4% Zn, 1.8-2.2% Mg, 2-2.6% Cu, and $\leq 0.5\%$ Zr, V, Hf, which overlaps the presently claimed alloying ranges as well as the alloys claimed in cl. 5 and 6. Hunt teaches said heat treatment process obtains an improved combination of strength, toughness, and corrosion resistance (abstract) and is used in aerospace applications such as upper wing members (column 1 lines 21-23, column 2 lines 1-3) with high strength and excellent corrosion resistance (column 2 lines 15-18). Said aging treatment taught by Hunt includes: I) aging at 175-285°F (79.4-140.5°C) for ≥ 2 hrs, II) aging at 300-350°F (148.9-176.7°C) for ≥ 5 hrs, which substantially overlaps the presently claimed time and temperature ranges. In Table 3, Hunt teaches that compression YS is maximized for examples 1, 3, 7 and 8, which have the following aging treatments, teq, and CYS:

Ex. 1	250 °F for 24 hr	360 °F for 0.75 hr	teq=219.8 hr	CYS= 94.4
Ex. 3	250 °F for 24 hr	370 °F for 0.5 hr	teq=223 hr	CYS= 96.1
Ex. 7	250 °F for 24 hr	375 °F for 0.25 hr	teq=146.8 hr	CYS= 98.8
Ex. 8	250 °F for 24 hr	375 °F for 0.42 hr	teq=230 hr	CYS= 95.2

Said aging steps taught by Hunt fall within the teq of instant claims 1 and 7. Additionally, the broad ranges taught by Hunt overlap the two step aging treatment of instant claim 11. Hunt teaches forming said alloys by conventional steps of casting, homogenizing, hot working by any

Art Unit: 1742

method (including hot rolling, column 5 line 44), solution heat treatment, hardening, stretching (column 5 lines 54-69, column 6 lines 1-16), followed by the above mentioned aging sequence. Though Hunt prefers hot working by extrusion in the above examples, Hunt clearly teaches that any known hot working technique is suitable to hot work said alloy, including hot working by rolling into sheet, plate, rod, or bar stock (column 5 lines 44-46). Because Hunt teaches a process of working and heat treating with overlapping process parameters and alloying ranges, it is held that Hunt has created a prima facie case of obviousness of the presently claimed invention.

Concerning claims 2-6, 25, and 28, as stated above, Hunt teaches an overlapping Al-Zn-Mg-Cu alloy composition. It would have been obvious to one of ordinary skill in the art to select any portion of range, including the claimed range, from the broader range disclosed in Hunt because Hunt finds that the prior art composition in the entire disclosed range has a suitable utility.

Concerning the particular aging steps of claims 9-10, Hunt teaches aging, which overlaps the presently claimed aging temperature ranges and equivalent times.

Concerning claims 26, 27, 29, and 30, though Hunt does not specify a metallurgical temper between two known temper designations, because Hunt teaches ageing times and temperature ranges that overlap the presently claimed aging time and temperature ranges, then the metallurgical temper designation would necessarily be the same.

Response to Arguments/Amendments

5. In the response filed on April 25, 2006, applicant amended claims 1 and 7, and submitted various arguments traversing the rejections of record. The examiner agrees that no new matter has been added.

6. The declarations filed on April 25, 2006 and August 5, 2005 under 37 CFR 1.131 is sufficient to overcome the Chakrabarti et al (US 2002/0121319 A1) reference.

7. Applicant's argument that the present invention is allowable over the prior art of record because Ponchel does not teach optimizing compression strength has not been found persuasive. Even if ex. 6 is questionable as a possible typographical error, Ponchel still teaches examples of t_{eq} that fall within the instant t_{eq} ranges, wherein said examples have improved/high compression yield strength. For instance (and as stated above), high compressive strength is achieved by Ponchel for Ex. 6 with an aging treatment of 24hrs at 275°F (see Fig. 3), which is equivalent to $t_{eq}=107$. Ponchel teaches that the tensile properties increase but the compressive strength decreases for an aging treatment of 24 hrs at 300°F (see Fig. 3 ex. 11), which is equivalent to $t_{eq}=390$ (outside the present invention). Ponchel teaches that compressive strength is dependent on aging time and temperature.

8. Applicant's argument that the present invention is allowable over the prior art of record because the preferred range of Ponchel does not overlap the instant alloying ranges, has not been found persuasive. Though the examples and the preferred alloying range of Ponchel is max. of 6.9% Zn, which does not overlap the presently claimed minimum of 7.0% Zn, the broad range taught by Ponchel is 5.9-8.2% Zn, which does overlap the presently claimed range of Zn.

Art Unit: 1742

9. Applicant's argument that the present invention is allowable over the prior art of Nakai, because Nakai teaches a three step aging treatment applied to any 7xxx alloy, whereas the amended claims are drawn to a *one or two step* aging treatment (applied to a particular Al-Zn alloy, to max. CYS) has been found persuasive. However, the instantly amended claims are newly rejected in view of Hunt as stated above.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (571) 272-1240. The examiner can normally be reached on 8:30 am- 6:00 pm.

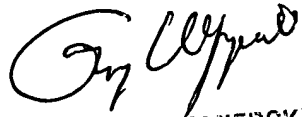
Art Unit: 1742

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JCM

June 28, 2006



GEORGE WYSZOMIERSKI
PRIMARY EXAMINER
GROUP 1700